

**RTO West  
CONGESTION MANAGEMENT WORK GROUP**

On May 24, 2000  
Meeting #1 (CM WG01)

RTO West at 5933 NE Win Sivers Dr.  
Portland and Telephone Conference Call  
1:00 – 5:00 pm

**Meeting Summary  
Version 1 – May 27, 2000**

**Attendees (by teleconference denoted with an “\*”) (54 attendees, 8 by teleconference):**

NAME	ORGANIZATION	PHONE	EMAIL
Frank Afranji *	Portland General Electric	503-464-7033	<a href="mailto:frank_afranji@pgn.com">frank_afranji@pgn.com</a>
John Anasis	BPA – TBL	360-418-2263	<a href="mailto:jganasis@bpa.gov">jganasis@bpa.gov</a>
Don Badley	NWPP	503-464-2805	<a href="mailto:don.badley@nwpp.org">don.badley@nwpp.org</a>
Rich Bayless	PacifiCorp	503-813-5739	<a href="mailto:Rick.bayless@pacificorp.com">Rick.bayless@pacificorp.com</a>
Stan Berman	Puget Sound Energy		<a href="mailto:sberman@hewm.com">sberman@hewm.com</a>
Ray Bliven	RCS for DSIs	360-737-3877	<a href="mailto:rdb@keywaycorp.com">rdb@keywaycorp.com</a>
Ray Brush *	Montana Power	406-497-4278	<a href="mailto:rbrush@mtpower.com">rbrush@mtpower.com</a>
Eric Carter	BPA – TBL	503-230-4083	<a href="mailto:ehcarter@bpa.gov">ehcarter@bpa.gov</a>
Phil Carver	OR Office of Energy	503-378-6874	<a href="mailto:Phillip.h.carver@state.or.us">Phillip.h.carver@state.or.us</a>
John Chandley	LECG	617-761-0118	<a href="mailto:John_chandley@lecg.com">John_chandley@lecg.com</a>
Randy Cloward	Avista Corp.	509-459-4619	<a href="mailto:rcoward@avista.com">rcoward@avista.com</a>
Kurt Conger	EXS Inc. for Seattle City Light	425-497-1133	<a href="mailto:kconger@nrgxs.com">kconger@nrgxs.com</a>
Carolyn Cowan *	Sierra Pacific & Nevada Power	775-834-4180	<a href="mailto:ccowan@sppc.com">ccowan@sppc.com</a>
Robin Cross *	Snohomish PUD	425-783-8481	<a href="mailto:rhcross@snopud.com">rhcross@snopud.com</a>
Steve Daniel	GDS Associates for UAMPS	770-425-8100	<a href="mailto:steved@gdsassoc.com">steved@gdsassoc.com</a>
Marc Donaldson	Montana Power	406-497-4717	<a href="mailto:marcd@mtpower.com">marcd@mtpower.com</a>
Chuck Durick	Idaho Power Company	208-388-2450	<a href="mailto:cdurick@idahopower.com">cdurick@idahopower.com</a>
Bill Eastlake	Idaho PUC	208-334-0300	<a href="mailto:beastla@puc.state.id.us">beastla@puc.state.id.us</a>
Wally Gibson	Northwest Power Planning Council	503-222-5161	<a href="mailto:wgibson@nwppc.org">wgibson@nwppc.org</a>
Kurt Granat	PacifiCorp	503-813-5744	<a href="mailto:Kurt.granat@pacificorp.com">Kurt.granat@pacificorp.com</a>
Paula Green	Public Generation Pool	206-386-4530	<a href="mailto:paula.green@ci.seattle.wa.us">paula.green@ci.seattle.wa.us</a>
David Hackett	KEMA Consulting	503-258-0187	<a href="mailto:dhackett@kemaconsulting.com">dhackett@kemaconsulting.com</a>
Dave Hoff	Puget Sound Energy	425-462-3716	<a href="mailto:dhoff@puget.com">dhoff@puget.com</a>
Steve Huhman	Southern Company Energy Marketing	925-287-3120	<a href="mailto:steve.huhman@southernenergy.com">steve.huhman@southernenergy.com</a>

Doug Hunter	UAMPS	801-566-3938	<a href="mailto:doug@uamps.com">doug@uamps.com</a>
Jim Kritikson *	California Power Exchange	626-537-3121	<a href="mailto:Jim_Kritikson@calpx.com">Jim_Kritikson@calpx.com</a>
Jim Mosher	IPP Groups	5-3-402-8709	<a href="mailto:jmp@aelaw.com">jmp@aelaw.com</a>
Ron Moulton *	WAPA - CRSP-MC	801-524-4012	<a href="mailto:moulton@wapa.gov">moulton@wapa.gov</a>
Duane Nelson *	Sierra Pacific		<a href="mailto:dnelson@sppc.com">dnelson@sppc.com</a>
Larry Nordell *	Montana Dept of Environmental Quality	406-444-6757	<a href="mailto:lnordell@state.mt.us">lnordell@state.mt.us</a>
Martin Ochotorena	CALPX	626-537-3267	<a href="mailto:mbochotorena@calpx.cm">mbochotorena@calpx.cm</a>
Arne Olson	WA DCTED	360-956-2022	<a href="mailto:arneo@ep.cted.wa.gov">arneo@ep.cted.wa.gov</a>
Ren Orans	Energy & Environmental Economics / BC Hydro	415-391-5100	<a href="mailto:ren@ethree.com">ren@ethree.com</a>
Rick Paschall	Pacific NW Generating Coop	503-288-4870	<a href="mailto:rpaschall@pngc.com">rpaschall@pngc.com</a>
Margaret Pedersen	BPA-PBL	503-230-3608	<a href="mailto:mepedersen@bpa.gov">mepedersen@bpa.gov</a>
Dave Perrino	APX	408-517-2146	<a href="mailto:dperrino@apx.com">dperrino@apx.com</a>
Deanna Phillips	BPA-PBL	360-607-8438	<a href="mailto:dmpillips@bpa.gov">dmpillips@bpa.gov</a>
Dennis Phillips	PBA-PBL	503-230-5062	<a href="mailto:dwphillips@bpa.gov">dwphillips@bpa.gov</a>
Susan Pope	LECG	617-761-0104	<a href="mailto:spope@lecg.com">spope@lecg.com</a>
Lloyd Reed	Puget Sound Energy	425-462-3681	<a href="mailto:lreed@puget.com">lreed@puget.com</a>
Chris Reese	Puget Sound Energy	465-462-3055	<a href="mailto:creese@puget.com">creese@puget.com</a>
Mike Ryan	Portland General Electric	503-464-8793	<a href="mailto:mike_ryan@pgn.com">mike_ryan@pgn.com</a>
Jeff Schlect	Avista Corp.	509-495-4851	<a href="mailto:jeff.schlect@avistacorp.com">jeff.schlect@avistacorp.com</a>
Brian Silverstein	BPA-TBL	360-418-8678	<a href="mailto:bsilverstein@bpa.gov">bsilverstein@bpa.gov</a>
Ajay Sood	Idaho Power Company	208-388-2457	<a href="mailto:asood@idahopower.com">asood@idahopower.com</a>
Rose Spear	PPL Montana/PPL Energyplus	406-533-3520	<a href="mailto:rspear@pplmt.com">rspear@pplmt.com</a>
Barney Speckman	KEMA Consulting	503-258-0475	<a href="mailto:bmspeckman@aol.com">bmspeckman@aol.com</a>
Jonah Tsui	PRM	425-451-9123	<a href="mailto:jtsui@prmlp.com">jtsui@prmlp.com</a>
Jim Tucker	Deseret G&T Co-operative	801-619-6504	<a href="mailto:jtucker@deseretgt.com">jtucker@deseretgt.com</a>
Rick Vermeers	Avista Corp.	509-495-8057	<a href="mailto:rvermeers@avistacorp.com">rvermeers@avistacorp.com</a>
Steve Weiss	NW Energy Coalition	503-393-8859	<a href="mailto:steve@nwenergy.org">steve@nwenergy.org</a>
Lou Ann Westerfield	Idaho PUC	208-334-0323	<a href="mailto:lwester@puc.state.id.us">lwester@puc.state.id.us</a>
Kent Wheatland	Dynegy		<a href="mailto:kewh@dynegy.com">kewh@dynegy.com</a>
Linc Wolverton	East Fork Economics	360-263-3675	<a href="mailto:lwolv@worldaccessnet.com">lwolv@worldaccessnet.com</a>

### Definitions:

RRG	Regional Representative Group for RTO West Collaborative Process
WG	Work Group (Reports to RRG)
CM	Congestion Management
RTO West Website	<a href="http://www.rtowest.com">www.rtowest.com</a>

RTO West Facility	Building located at 5933 Win Sivers Dr., Kingstad Center, Portland OR, 97220 (off Airport Way, east of I-205)
Kingstad Building	Same as RTO West Facility

### **Calendar:**

May 24, 2000	Kick Off Meeting for WG (Meeting #1) Complete	RTO West Facility
June 6-7, 2000	Congestion Management Workshop	RTO West Facility
June 12	CM WG Meeting #2	RTO West Facility
June 19	CM WG Meeting #3	RTO West Facility
June 26-27	CM WG Meeting #4	RTO West Facility
July 10-11	CM WG Meeting #5	RTO West Facility
July 17-18	CM WG Meeting #6	RTO West Facility
July 24-25	CM WG Meeting #7	RTO West Facility
July 31-August 1, 2000	CM WG Meeting #8	RTO West Facility

<b>Assignments (Includes Action Items) from May 24 Work Group Meeting:</b>	<b>Status</b>
1. F. Afranji to contact Phil Park seeking permission to distribute the draft <u>ALLOCATION OF TRANSMISSION CAPACITY BETWEEN INTERACTING TRANSMISSION PATHS</u> Report to the RTA BOARDS by the WICF PATH ALLOCATION TASK FORCE	New
2. Deanna Phillips volunteered to be the WG liaison with NERC CM activities.	New
3. C. Durick will investigate if IndeGO CM definitions were produced and distribute if they exist.	New
4 R. Moulton offered to provide DSTAR CM definitions	New
5. C. Cowan offered to provide MISO CM definitions	New

### **Summary of Consensus (Decisions Made):**

1. WG meeting schedule was developed and posted to August 1, 2000 along with scheduling rules.
2. High-level process developed to reach consensus.

### **Highlights of Meeting by Agenda Item (Agenda Attached)**

#### **Agenda Item 1: Introductions**

- Review agenda and Facilities / Logistics
- Introductions and Background – Reference attendance list
- Work Group's Guiding Documents – distributed via emails on May 16<sup>th</sup> and 23<sup>rd</sup> also available via the RTO West website.
  - RTO Filing Utilities'
  - Consensus Concerning RTO Form and Structure
  - RTO Filing Principles

- RRG Consensus Issues List
- Objective of WG
  - The WG must set aggressive schedules to meet the RRG goals of:
    - White paper in bullet form by the end of July
    - White paper by August 24, 2000
  - This WG will report to the RRG as defined in the Roles document, previously referenced, both on a periodic basis and when key events occurs such as:
    - Decisions made / deadlocks to RRG as they occur

## **Agenda Item 2: Review of Issues assigned by RRG**

- Issue #3 – Congestion Pricing – It was noted at the May 17,2000 RRG meeting by the Filing Utilities that: 1) a definition of the CM approach must be defined by the 10/15/2000 filing date and b) the selected approach must be implemented by the end of 2001. This is the WG's direction even though there are several texts that states or implies (eg. FERC 2000 and wording of this issue) congestion management is not required initially.
- Issue #6 – Control Area Functions to be performed by the RTO (support to Implementation, Ancillary Services and Seams WGs). Implementation WG has the lead on this issue.
- Issue #7 – Transmission Planning (shared with Transmission Pricing and Planning WGs). Transmission Planning has the lead on this issue.
- Issue #13 – Transmission congestion reservations and suspension of existing contracts (shared with Legal WG)
- Issue #14 – Ancillary Services (support to Ancillary Services WG). Ancillary Services has the lead on this issue.
- Additional Issues- The following additional issues were recently assigned to this WG: Issue 2 (Transmission Losses) with Transmission Pricing and Ancillary Services, Issue 4 (Price reciprocity and other seams issues) with Seams, Issue 23 (Operations) with Implementation and Ancillary Service.

Discussion arose on the extent of congestion in the Northwest. Several comments suggested that there was none or insufficient congestion while others did not agree. A draft paper by Phil Park who participated in the WICF Path Allocation Task Force on the NW shows more congestion is expected. F. Afranji took an action item to contact Phil and seek permission to distribute the draft paper in electronic form to the CM WG. {See assignment number 1 }

NERC is also looking at congestion and the WG like to avoid inconsistencies should they arise. Most of the group felt NERC was looking at the longer-term strategy while this group is addressing what needs to be accomplished by the end of 2001. Deanna Phillips volunteered to be the liaison between this WG and the NERC committee that she attends. {See assignment number 2 }

- Review Congestion Management Work Shop Agenda – Susan Pope (LECG)

In the June 6 and 7 workshop, LECG plans to present the following topics:

Review of IndeGO

What are other ISO doing?

What does FERC say (reference the handout “Requirements of Order 2000”)?

Review of the various methods used in congestion management, what are the strengths, weakness, etc. LECG hopes to provide a structured approach to guide the process depending on the method selected.

The Workshop would contain handouts and consist of a combination of presentations and interactive discussion.

The Workshop would be scheduled as follows:

June 6<sup>th</sup> 9:30 am - 5:00 pm

June 7<sup>th</sup> 8:30 am - 4:00 pm

### **Agenda Item 3: Definition and prioritization of tasks**

During prior discussions it was evident a common set of definitions related to congestion management was needed. Chuck Durick agreed to review the IndeGO CM work and if definitions were available he would distribute. Ron Moulton offered to provide the definitions from DSTAR and Carolyn Cowan offered to provide the MISO definitions. {See assignment numbers 3-5}

- Issues From Participants Perspective (Issue and how addressed)

The goal of this agenda topic was two fold. First it was to collect the CM issues (independent of implementation methods) of the participants and secondly to provide the workshop leaders with a combination of likes and dislikes of the IndeGO model and related issues. The following list was recorded on the whiteboard:

Market driven – truly competitive

IndeGO flow based distribution paths (did not like)

Review / refine the basic principles of IndeGO

CREPC paper (on website)

Efficient Signals to expand system

Reliability of IndeGO – volunteer to cut schedules->mandatory to cut schedules-> final step not defined.

Accept all schedules -> CM needs to cover different period in time (eg: 1hr, 1 day, etc)

Firm transmission rights

Translation from Contract Path → Flow based

Need an easy way to find out who is the winner and who is the loser- otherwise too complex

Impact of flows outside of the RTO (can impact or help)

Existing system has a large hydro base (system efficient?)

Need to define the extend of congestion in the RTO (now and 3.5 years from now)

Need good price signals for planning, etc.

New market behavior

- Short-term view (now to Workshop)

Read IndeGO Congestion Management white paper and related papers on the subject

- Longer term view (Workshop to completion of white paper)

Post workshop the following steps would be taken

1. Discuss and Document the approaches with pluses and minuses (evaluate the cost to implement)
2. Development and understand preferred approach. Consider having each RRG area present their choice and rational.
3. Test (reality-financial test)
4. Arrive at consensus

#### **Agenda Item 4- Work Group plans and schedule**

##### **Meeting Date/Time**

The WG selected an aggressive meeting schedule starting on June 12 (post workshop).

The following rules would be used in setting up meetings:

1. Schedule two day meetings
2. First day meeting starts at 9:30 am, and second day starts at 8:30 am.
3. Do not schedule in parallel with a Workshop.
4. Develop agenda with specific times to permit a person to selectively attend various agenda topics.

Please note no meetings were scheduled on June 13 and June 20 due to conflicts with Workshops scheduled on these dates.

#### **Next Meeting:**

- Next meeting: June 6-7, 2000 Work Shop on Congestion Management @ RTO West Facility, 5933 NE Win Sivers Dr., Portland, OR, 97220
- Agenda for Workshop to be sent via Email (week of 6/2)

Minutes prepared by: D. F. Hackett

Handouts (Excluding handouts posted on the web from prior meetings)

- Revised Agenda
- Requirements of Order 2000 by John Chandley

## **Congestion Management (CM) Work Group Meeting #1**

Date: Wednesday, May 24, 2000

Time: 1:00 to 5:00 pm

Place: RTO West Office                      Or      Conference  
Kingstad Center                              303-633-6110  
Suite 201  
5933 NE Win Sivers Drive  
Portland, OR 97220

### **Agenda:**

#### 1) Introductions

- Review agenda and Facilities / Logistics
- Introductions and Background
- Work Group's Guiding Documents
  - RTO Filing Utilities'
  - Consensus Concerning RTO Form and Structure
  - RTO Filing Principles
  - RRG Consensus Issues List
- Objective of WG
  - White paper in bullet form by the end of July
  - White paper by August 24, 2000
  - Decisions made / deadlocks to RRG as they occur

#### 2) Review of Issues assigned by RRG

- Issue #3 – Congestion Pricing
- Issue #6 – Control Area Functions to be performed by the RTO (support to Ancillary Services and Seams WGs)
- Issue #7 – Transmission Planning (shared with Transmission Pricing and Planning WGs)
- Issue #13 – Transmission congestion reservations and suspension of existing contracts (shared with Legal WG)
- Issue #14 – Ancillary Services (support to Ancillary Services WG)

Review Congestion Management Work Shop Agenda – Susan Pope

#### 3) Definition and prioritization of tasks

- Issues From Participants Perspective (Issue and how addressed)
- Short-term view (now to Workshop)
- Longer term view (Workshop to completion of white paper)

#### 4) Work Group plans and schedule

- Meeting Date/Time

## REQUIREMENTS OF ORDER 2000

### Relevant Quotes from FERC's Final RTO Order Relating to Congestion Management And Real-Time Balancing Markets

Compiled for the West RTO  
Congestion Management Working Group  
May 24, 2000

#### RTO REQUIREMENTS

#### Minimum Functions of an RTO

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“In the NOPR, we proposed seven minimum functions that an RTO must perform. In general, we proposed that an RTO must:

- (1) administer its own tariff and employ a transmission pricing system that will promote efficient use and expansion of transmission and generation facilities;
- (2) create market mechanisms to manage transmission congestion;
- (3) develop and implement procedures to address parallel path flow issues;
- (4) serve as a supplier of last resort for all ancillary services required in Order No. 888 and subsequent orders;
- (5) operate a single OASIS site for all transmission facilities under its control with responsibility for independently calculating TTC and ATC;
- (6) monitor markets to identify design flaws and market power; and
- (7) plan and coordinate necessary transmission additions and upgrades

We basically affirm these seven functions...”  
(pp. 323-4)

An RTO's congestion management function is closely associated with its real-time operational functions:

“[W]e conclude that the RTO or an independent entity must assume an active role in developing and implementing any congestion market mechanisms, because the use of such mechanisms must necessarily be closely coordinated with the operational activities that the RTO performs on a day-to-day and, in many cases, moment-to-moment basis.”

(p. 380)

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**CONGESTION MANAGEMENT****Regional Market**

FERC wants RTO's to provide regional markets to manage congestion:

“[T]he NOPR noted that efficient congestion management required regional actions, and that the current methods for managing congestion (e.g., Transmission Line Loading Relief procedures in the Eastern Interconnection), which do not attempt to optimize regional congestion relief, were cumbersome, inefficient and disruptive to bulk power markets.”

(pp. 334)

“[T]raditional approaches to congestion management such as those that rely exclusively on the use of administrative curtailment procedures may no longer be acceptable in a competitive, vertically de-integrated industry. We thus concluded that efficient congestion management requires a greater reliance on market mechanisms...”

(p. 333)

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The RTO's congestion management market must be open to all and must send efficient price signals:

“[W]e...proposed that the market mechanisms must accommodate broad participation by all market participants, and must provide all transmission customers with efficient price signals regarding the consequences of their transmission usage decisions.”

(p. 332)

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The RTO's congestion management market must provide efficient price signals about each participant's transmission use:

“[W]e will require the RTO to implement a market mechanism that provides all transmission customers with efficient price signals regarding the consequences of their transmission use decisions. We are convinced that efficient congestion management requires that transmission customers be made aware of the cost consequences of their actions in an accurate and timely manner, and we believe that this is best accomplished through such a market mechanism.”

(p. 382)

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## CONGESTION MANAGEMENT

## Requirements

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The RTO congestion management system must provide tradable transmission rights that promote an efficient dispatch while hedging locational price differences:

“[W]e believe that a workable market approach should establish clear and tradeable rights for transmission usage, promote efficient regional dispatch, support the emergence of secondary markets for transmission rights, and provide market participants with the opportunity to hedge locational differences in energy prices.”

(p. 333)

“[E]very RTO must establish a system of congestion management that establishes clear rights to transmission facilities and provides market participants with price signals that reflect congestion and expansion costs.”

(p. 489)

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## CONGESTION MANAGEMENT

## Requirements

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The RTO’s congestion management market and pricing system must ensure a least-cost (economic) dispatch and allocate transmission use efficiently:

“We proposed to allow RTOs considerable flexibility in experimenting with different market approaches to managing congestion through pricing. However, we stated that proposals should ensure that (1) the generators that are dispatched in the presence of transmission constraints are those that can serve system loads at least cost, and (2) limited transmission capacity is used by market participants that value that use most highly.”

(p. 332-3)

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## CONGESTION MANAGEMENT

[Link to Balancing Market](#)

FERC believes that transmission pricing -- congestion pricing -- is an important element of an RTO's real-time energy, balancing and ancillary service markets:

“[T]ransmission pricing is a key determinant of the efficient operation of energy, ancillary service and balancing markets, and congestion management.”

(p. 509)

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## CONGESTION MANAGEMENT

**Flexibility**

FERC is not mandating a specific method for managing loop flows:

“We recognize that congestion pricing, especially when complex problems associated with parallel path flows are addressed, is in its infancy. Rather than prescribe a specific method, we encourage experimentation with reasonable congestion management techniques. We would expect that such experiments be consistent with the open architecture requirements of the rule, and that information from such experiments be made widely available to all interested parties, so that other RTOs can learn from each others' experience.”

(p. 526)

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## CONGESTION MANAGEMENT    Acceptable Approaches

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FERC withholds judgment about purely decentralized congestion management. Existing ISOs show the feasibility of coordinated market approaches to congestion management:

“It is too early to tell if these decentralized markets will work efficiently. But given the short time frame in which system operators often must react to congestion situations, experience may ultimately show that markets for congestion management can achieve more efficient and effective results if they are centrally operated. Therefore, we will not deny here the RTO, or other independent entity, the opportunity to operate a market -- either centralized or decentralized -- for congestion management.” (p. 381)

“... developing a sophisticated congestion management program can be an extremely complex and time consuming matter. However, implementation of economic approaches to congestion management by some of the approved ISOs shows the feasibility of these concepts where there is an institution to undertake the organization of this function over a large area.” (pp. 671)

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## CONGESTION MANAGEMENT    Acceptable Approaches

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FERC has approved and supports LMP, but has not mandated it:

“While we will not prescribe a specific congestion pricing mechanism, we note that some approaches appear to offer more promise than others. As we stated in our order approving the PJM ISO and reiterated in the NOPR, markets that are based on locational marginal pricing and financial rights for firm transmission service appear to provide a sound framework for efficient congestion management.” (pp. 382)

“A number of commenters agreed with the Commission's conclusion in the NOPR that "markets that are based on locational marginal pricing and financial rights for transmission provide a sound framework for efficient congestion management.” (p. 525)

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FERC expects the RTO to ensure all customers have access to a real-time balancing market:

“In the NOPR, the Commission proposed that an RTO must ensure that its transmission customers have access to a real-time balancing market...The Commission noted that...system-wide balancing is a critical element of reliable short-term grid operation...” (pp. 406)

“As we proposed in the NOPR, we conclude that an RTO must ensure that its transmission customers have access to a real-time balancing market that is developed and operated by either the RTO itself or another entity that is not affiliated with any market participant. We have determined that real-time balancing markets are necessary to ensure non-discriminatory access to the grid and to support emerging competitive energy markets.” (p. 423)

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An RTO does not have the option not to provide a real-time balancing market:

“[E]ven if an RTO is not a control area operator, it should have sufficient operational authority to ensure that a real-time balancing market can be implemented. With regard to the issue of flexibility, we believe that real-time balancing markets are essential for development of competitive power markets. Therefore, although we will give RTOs considerable discretion in how they operate real-time balancing markets, we will not allow implementation of such markets to be discretionary.” (pp. 424)

The RTO must ensure non-discriminatory access to the region's real-time balancing market:

“We also noted that unequal access to balancing options for individual customers can lead to unequal access in the quality of transmission service available to different customers...” (pp. 406-7)

“In the NOPR, we noted that unequal access to balancing options can lead to unequal access in the quality of transmission service, and that this could be a significant problem for RTOs that serve some customers who operate control areas and other customers who do not. We conclude that control area operators should face the same costs and price signals as other transmission customers and, therefore, also should be required to clear system imbalances through a real-time balancing market. We believe that providing options for clearing imbalances that differ among customers

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## **MARKET DESIGN LESSONS**

While the currently operating ISOs differ, they share certain features. They all offer one or more bid-based markets, including a bid-based real-time balancing market. They all use market participant bids to help manage congestion and provide balancing through the ISO's real-time dispatch. FERC is generally supportive of this market design approach.

“Cal ISO, PJM and ISO-NE have had operational experience with their respective market designs. For the most part the markets operated by these ISOs have functioned well, and they have not experienced many of the problems encountered in the bilateral markets in the Midwest and the Southeast.”

(p. 632)

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## MARKET DESIGN LESSONS

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Using market participant bids to manage congestion, balance the system, and provide reserves is an accepted approach at FERC:

“The bid-based markets that we have approved to date are premised on the assumption that acceptance of voluntary supply and demand bids which maximize overall net benefits will also maximize efficiency. Each approved ISO design employs some bid-based mechanism to ramp resources up and down to balance the system, manage congestion, and to supply some ancillary services. Employing bids that indicate a generator's willingness to be ramped down, ramped up, or placed in reserve is an economic way to balance the system, manage congestion and maintain appropriate reserves, both in real time and in any day-ahead markets.”

(p. 633)

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## MARKET DESIGN LESSONS

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More support for a bid-based real-time dispatch/balancing market:

“Over the last several years, the Commission has seen an increasing use by system operators of market mechanisms that rely on bids from generators to achieve, overall, real-time balancing.”

(p. 635)

“It is expected that any RTO balancing markets will be available to all grid users, i.e., including individual grid users that engage in bilateral transactions...Making a real-time balancing market available to all grid users ensures that all users are treated equally for purposes of settling their individual imbalances. The four operating ISOs approved by the Commission already operate such markets.”

(p. 635-6)

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## MARKET DESIGN LESSONS

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FERC regards forms of averaging when applied to congestion pricing as generally undesirable:

“Market designs that base prices on the averaging or socialization of costs, may distort consumption, production, and investment decisions and ultimately lead to economically inefficient outcomes. Where possible and cost effective, cost causality principles can be used to price services and eliminate averaging. For example, in some congestion management mechanisms, the cost of alleviating congestion is spread over all loads. This scheme could have some generators creating monetary benefits for other generators. In addition, it could lead to over-consumption of power by some loads and under-consumption by other loads. Moreover, such averaging mechanisms for congestion management do not send the correct price signals for the location of new generation, thus leading to problems with long-term implications.” (p. 642-3)